Artificial intelligence in healthcare: Complementing, not replacing, doctors and healthcare providers

Abstract

The utilization of artificial intelligence (AI) in clinical practice has increased and is evidently contributing to improved diagnostic accuracy, optimized treatment planning, and improved patient outcomes. The rapid evolution of AI, especially generative AI and large language models (LLMs), have reignited the discussions about their potential impact on the healthcare industry, particularly regarding the role of healthcare providers. Concerning questions, "can AI replace doctors?" and "will doctors who are using AI replace those who are not using it?" have been echoed. To shed light on this debate, this article focuses on emphasizing the augmentative role of AI in healthcare, underlining that AI is aimed to complement, rather than replace, doctors and healthcare providers. The fundamental solution emerges with the human–AI collaboration, which combines the cognitive strengths of healthcare providers with the analytical capabilities of AI. A human-in-the-loop (HITL) approach ensures that the AI systems are guided, communicated, and supervised by human expertise, thereby maintaining safety and quality in healthcare services. Finally, the adoption can be forged further by the organizational process informed by the HITL approach to improve multidisciplinary teams in the loop. AI can create a paradigm shift in healthcare by complementing and enhancing the skills of healthcare providers, ultimately leading to improved service quality, patient outcomes, and a more efficient healthcare system.